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## Production and Nutrient Content of Broiler Litter

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How much litter is produced in a broiler house in one year? How much nitrogen, phosphorus, and potassium is present in broiler litter? These are questions that concern broiler producers and others who have an interest in the use and safe disposal of broiler litter. A project was initiated with support of the Tennessee Valley Authority and the cooperation of several broiler producers in Carlisle County to help answer these questions.

### Procedure

Broiler houses of 20,000 square feet (40 ft x 500 ft) containing approximately 26,000 birds per flock are commonly used for broiler production in Kentucky. At present, almost all use rice hulls for litter; remove crusted material and add fresh litter between flocks and do a complete cleanout once a year.

Litter in thirteen of these broiler houses ranging from the second flock to the fifth flock was sampled for total amount of litter and the nutrient content. Litter from 8 to 10 one square foot areas was removed from each house and weighed. The weights were averaged and used to calculate the total amount of litter present in each

house. Subsamples of the litter were sent to the U. K. Regulatory Services Laboratories for nutrient analysis.

### Results

The amount of litter in the houses is summarized in Table one. Average litter amount ranged from 45 to 94 tons per house and generally increased with the number of flocks between complete cleanouts. Usually, at least six flocks are produced per year; therefore the estimated amount of litter present at total (annual) cleanout should be about 100 tons.

This estimate does not include litter removed between flocks with the "crusting" operation. The best estimates indicate that 40 to 60 tons per house per year are removed by the cruster in this way. This would bring the total production per year to 140 to 160 tons per house.

Average moisture contents ranged from 19 to 27 percent. Individual house moisture contents ranged from 18 to 31 percent. Differences seemed to be related to individual growers and their management rather than the number of flocks produced since cleanout.

Nutrient content of litter is reported in Table 2. Average nitrogen, phos-

phate and potash levels tended to increase as flock number increased. Total nitrogen levels in litter are about what had been expected. However, potash levels are higher than data from other states and phosphate is a little higher than in most farmer-submitted samples.

These nutrient levels are subject to change if the litter is removed and stored before use. In general, nitrogen levels decrease while phosphate and potash increase during storage. It is best to have samples tested as close to application time as possible to know what is being applied.

### Summary

Litter production from broiler houses is estimated to be 140 to 160 tons per house per year based on sampling 13 houses in Carlisle County, Kentucky. Average total nitrogen, phosphate and potash levels in the litter increased with flock number (two through five flocks): nitrogen - from 46 to 56 lbs. per ton; phosphate - from 54 to 65 lbs. per ton; and potash - from 54 to 63 lbs. per ton. Average litter moisture content ranged from 19 to 27% and appeared to be related to management.

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**Table 1. Litter Content of Broiler Houses - Carlisle County, 1994**

<i>No. of Samples</i>	<i>Flock No.</i>	<i>Litter (T/House)</i>	<i>Moisture (%)</i>
6	2	45	27
4	3	68	22
1	4	94	19
2	5	70	24

**Table 2. Average Nutrient Content of Broiler Litter in Houses - Carlisle County, 1994\***

<i>Flock No.</i>	<i>Nitrogen (lbs N/T)</i>	<i>Phosphate (lbs P<sub>2</sub>O<sub>5</sub>/T)</i>	<i>Potash (lbs K<sub>2</sub>O/T)</i>
2	46	54	54
3	48	58	59
4	54	61	61
5	56	65	63

\* Wet litter (as is) basis.



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